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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Massimo Civilini

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EXAMINER

SUGLO, JANET L

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/603,382	Applicant(s) CIVILINI, MASSIMO	
	Examiner Janet Suglo	Art Unit 2857	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 September 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25,27-31 and 34-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25,27-31 and 34-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The action is responsive to the Amendment filed on August 27, 2007. Claims 1-25, 27-31 and 34-36 are pending. Claims 1, 4, 6, 8-10, 12, 14, 15, 17, 27, 29 and 34-36 have been amended. Claims 26, 32 and 33 has been cancelled.

Claim Objections

2. **Claim 17** is objected to because of the following informalities: Line 6 of claim 17 currently states "means for the identifying a cumulative" and should be replaced with -- means for identifying a cumulative --. Appropriate correction is required.
3. **Claims 34 and 35** are objected to because of the following informalities: claims 34 and 35 contain the exact same subject matter. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. **Claims 1-13, 31, and 36** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement.

6. **Claim 1** is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 1 includes "the reference failure rate being a *first quotient* of an amount of failures associated with a population of the monitored device and an amount of time, the inputted reference failure rate associated with an expected operating temperature for the monitored device and an expected communication capacity utilization for the device" which has not been disclosed in the specification.

7. **Claim 12** is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 12 includes "a *second quotient* of a traffic-byte-counter-measured packet processing rate" which has not been disclosed in the specification.

8. **Claims 2-13, 31 and 36** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement based on their dependency on claim 1.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

10. **Claims 22 and 31** rejected under 35 U.S.C. 102(a) as being anticipated by Garrow et al. (US PGPub 2002/0194160) (hereinafter “Garrow”). Garrow teaches a computer readable medium with instructions embedded therein for causing a processor implement a reliability determination process including (e.g., [0011]):

an initialization module for directing implementation of an initialization process (e.g., [0030]);

determination process and a field condition reliability analysis process for determining one or more operational parameters of a component (e.g., [0031], [0033]);

a reliability determination runtime module for interfacing with an operating system to calculate one or more field-adjusted Mean Time Between Failures (MTBFs) by adjusting a reference MTBF for the component using the operational parameters and to calculate one or more cumulative reliability index values based on the field-adjusted MTBFs (e.g., [0035], [0042], [0043]); and

an output module for causing the calculated cumulative reliability index values to be displayed to a user (e.g., [0035], [0047]).

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

12. **Claims 27, 28 and 30** are rejected under 35 U.S.C. 102(e) as being anticipated by Gullo et al. (US Patent 6,684,349) (hereinafter "Gullo").

With respect to **claim 27**, Gullo teaches a method comprising:

identifying a reference failure rate for a device, the reference failure rate usable for calculating a time between failures statistic associated with the device and based on expected operating parameters for the device (i.e., predecessor LRU or MTBF calculated at interim parts in process as shown in Figure 2) (e.g., col 7, ln 51-67):

measuring actual operating parameters for the device while the device is operated for non-testing purposes in a field environment for the device (e.g., col 7, ln 18-20; col 7, ln 45-50; col 8, ln 42-52);

determining a custom failure rate by adjusting the reference failure rate that is based on the expected operating parameters and based on the actual operating parameters by the actual operating parameters that are measured while the device is operated for non-testing purposes in the field environment (e.g., col 10, ln 22-43);

outputting a signal for displaying the custom failure rate (e.g., col 10, ln 67): and

outputting a field-adjusted Mean Time Between Failures (MTBF) for the device that is determined by adjusting a predetermined MTBF for the device using the actual operating parameters that are measured while the device is operated for non-testing purposes in the field environment (e.g., col 10, ln 22-43; col 10, ln 67).

With respect to **claim 28**, Gullo teaches the measured operating parameters are transferred over a network for remote analysis (e.g., col 6, ln 20-24).

With respect to **claim 30**, Gullo teaches the custom failure rate is an instantaneous failure rate for the device measured at a first time and the custom failure rate is summed with other instantaneous failure rates for the device that are measured at second other times to generate a cumulative reliability indication (e.g., col 10, ln 13-61).

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. **Claims 1, 6-9, 11, 13 and 36** are rejected under 35 U.S.C. 103(a) as being unpatentable over Quist et al. (US Patent 6,199,018) (hereinafter "Quist") in view of

Gullo and further in view of Schwaller et al. (US Patent 5,937,165) (hereinafter "Schwaller).

With respect to **claims 1, 7, 8 and 36**, Quist teaches an apparatus comprising:
one or more processors; and

a memory coupled to the processors comprising instructions executable by the processors (e.g., col 2, ln 12-30), the processors operable when executing the instructions to:

identify a reference expected life for a monitored device, the reference expected life being a first quotient of an amount of failures associated with a population of the monitored device and an amount of time, the reference expected life associated with an expected operating temperature for the monitored device and an expected stress for the device (i.e., Weibull Law) (e.g., col 19, ln 46 – col 20, ln 11);

communicate with the monitored device while the monitored device is in field operation for determining an actual operating temperature for the monitored device and an actual stress (e.g., col 19, ln 46 – col 20, ln 11);

determine a temperature stress adjustment factor using the expected operating temperature and the actual operating temperature (e.g., col 13, ln 10-45; col 27, ln 43-45);

determine an electrical stress adjustment factor using the expected stress and the actual stress (e.g., col 13, ln 10-45; col 19, ln 46 – col 20, ln 11); and

output an instantaneous expected life that is a first mathematical product of the reference expected life, the temperature stress adjustment factor and the electrical stress adjustment factor to a display device (e.g., Figure 1: 14, 15; col 3, ln 36-47; col 5, ln 3-18; col 19, ln 46 – col 20, ln 11).

Although Quist teaches using the Weibull law to train its neural networks, Quist does not teach inputting or outputting a reference failure rate (or MTBF). Gullo teaches providing the system with the failure rate and MTBF and further outputting the final failure rate and MTBF (Gullo: i.e., predecessor LRU or MTBF calculated at interim parts in process as shown in Figure 2) (Gullo: e.g., col 7, ln 51-67; col 10, ln 22-43; col 10, ln 67). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Quist to include the failure rate calculations as done by Gullo because MTBF calculations will more accurately predict in-field reliability of equipment to minimize failure risks (Gullo: col 2, ln 45-57).

Neither Quist nor Gullo teach the above calculations in reference to communication capacity utilization. Schwaller teaches testing traffic based communications network performance using both expected and actual traffic (Schwaller: col 4, ln 30-33). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Quist and Gullo to include the communication capacity utilization of Schwaller because this will provide greater testing flexibility (Schwaller: col 3, ln 17-20).

With respect to **claims 6 and 9**, Schwaller further teaches the apparatus is integrated with a router and the monitored device is a communication component located in the router (Schwaller: col 25, ln 8-9). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Quist and Gullo to include the communication capacity utilization of Schwaller because this will provide greater testing flexibility (Schwaller: col 3, ln 17-20).

With respect to **claim 11**, Quist further teaches the measured operating parameters are transferred over a network for remote analysis (Quist: col 5, ln 51-62).

With respect to **claim 13**, Quist further teaches calculating an aggregate of the temperature data (Quist: col 16, ln 15-19), but does not teach an aggregate of failure rate data. Gullo teaches determining a cumulative reliability indication value by summing the instantaneous failure rate with other instantaneous failure rates for the monitored device that are determined by the apparatus periodically according to a predefined period (Gullo: col 5, ln 60-65; col 9, ln 50-54). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Quist to include the failure rate calculations as done by Gullo because MTBF calculations will more accurately predict in-field reliability of equipment to minimize failure risks (Gullo: col 2, ln 45-57).

15. **Claim 10** is rejected under 35 U.S.C. 103(a) as being unpatentable over Quist in view of Gullo in view of Schwaller and further in view of Chess et al. (US Patent 5,802,592) (hereinafter "Chess"). Quist teaches initializing random access memory (RAM) with previously stored values (Quist: col 4, ln 56-67; col 16, ln 45-50); defining a reliability sampling period or interval (Quist: col 24, ln 60-64); and starting background tasks (Quist: col 4, ln 56-67). Quist, Gullo, and Schwaller do not explicitly teach checking the integrity of a non volatile memory. Chess teaches verifying the integrity of the contents of ROMs (FLASH and otherwise) (Chess: col 1, ln 37-39). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Quist, Gullo, and Schwaller to include checking the integrity of the non volatile memory as done by Chess because the verification will ensure that no accidental changes have been made to the contents of the ROM (Chess: col 1, ln 39-41).

16. **Claims 14-17 and 19-21** are rejected under 35 U.S.C. 103(a) as being unpatentable over Gullo in view of Quist.

With respect to **claim 14**, Gullo teaches a system comprising: means for inputting a first predetermined Mean Time Between Failures (MTBF) for a monitored device, the first predetermined MTBF based on expected environmental conditions and expected usage parameters for the device (i.e., predecessor LRU or MTBF calculated at interim parts in process as shown in Figure 2) (Gullo: e.g., col 7, ln 51-67)

means for measuring machine parameters while the device is being operated in the field and actual electrical stress on the monitored device while the device is being operated in the field (Gullo: e.g., col 4, ln 28-30; col 7, ln 18-20; col 7, ln 45-50; col 8, ln 42-52);

means for determining a second field-adjusted MTBF for the monitored device, the second field-adjusted MTBF determined by adjusting the first predetermined MTBF by the field-measured actual temperature and the field-measured actual electrical stress, the second field-adjusted MTBF being different than the first predetermined MTBF (Gullo: e.g., col 10, ln 22-43); and

means for outputting the second field-adjusted Mean Time Between Failures (MTBF) (Gullo: e.g., col 10, ln 67).

Gullo does not explicitly teach that the machine parameters include temperature. Quist teaches measuring actual temperature while the device is being operated (Quist: col 8, ln 20-36). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Gullo to include the temperature readings of Quist because operating temperatures that machines must endure greatly effect the life span of a machine and therefore knowing the temperature will make the MTBF reading more accurate.

With respect to **claims 15 and 16**, Gullo does not explicitly teach that the machine parameters include temperature. Quist teaches the actual temperature and the actual electrical stress are measured automatically after passage of a predefined

time interval and over a predefined duration (Quist: e.g., col 17, ln 23-35; col 20, ln 35-45; col 28, ln 55-62). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Gullo to include the temperature readings of Quist because operating temperatures that machines must endure greatly effect the life span of a machine and therefore knowing the temperature will make the MTBF reading more accurate.

With respect to **claim 17**, Gullo teaches means for determining an instantaneous failure rate by adjusting a reference failure rate for the device according to measurements (Gullo: e.g., col 10, ln 22-43). Gullo does not teach a predetermined time interval. Quist teaches means for automatically re-determining the instantaneous failure data after passage of a predefined time interval (Quist: e.g., col 4, ln 56 – col 5, ln 35; col 16, ln 1-19); and

means for identifying a cumulative reliability indication value for the monitored device by summing the initial instantaneous failure data and the re-determined instantaneous failure data (Quist: e.g., col 15, ln 61-67; col 16, ln 16-19). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Gullo to include the time interval of Quist because timing intervals lead to more detailed and accurate calculations.

With respect to **claim 19**, Quist teaches the expected usage parameters are based on an expected amount of power cycles applied to the monitored device (e.g., col

28, ln 36-50). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Gullo to include the time interval of Quist because timing intervals lead to more detailed and accurate calculations.

With respect to **claim 20**, Quist teaches the expected temperature is an expected operating temperature (e.g., col 17, ln 23-35). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Gullo to include the temperature readings of Quist because operating temperatures that machines must endure greatly effect the life span of a machine and therefore knowing the temperature will make the MTBF reading more accurate.

With respect to **claim 21**, Quist teaches the expected temperature is an expected ambient temperature (e.g., col 22, ln 40-49). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Gullo to include the temperature readings of Quist because operating temperatures that machines must endure greatly effect the life span of a machine and therefore knowing the temperature will make the MTBF reading more accurate.

17. **Claim 18** is rejected under 35 U.S.C. 103(a) as being unpatentable over Gullo in view of Quist and further in view of Hedlund et al. (US Patent 6,516,282) (hereinafter "Hedlund"). Gullo and Quist teach parent claim 14. Quist further teaches measuring ambient temperature (Quist: col 22, ln 40-49), but neither Gullo nor Quist teach

measuring operating humidity. Hedlund teaches measuring operating humidity (Hedlund: col 3, ln 13-24). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Gullo and Quist to include the humidity sensor of Hedlund because determining the humidity of the system will better determine the reliability and lifespan of the system (Hedlund: col 3, ln 13-24).

18. **Claims 23-25** are rejected under 35 U.S.C. 103(a) as being unpatentable over Garrow in view of Quist and further in view of Chess et al. (US Patent 5,802,592) (hereinafter "Chess").

With respect to **claim 23**, Garrow teaches parent claim 22, but does not teach checking the integrity of non volatile memory. Quist teaches initializing random access memory (RAM) with previously stored values (Quist: col 4, ln 56-67; col 16, ln 45-50); defining a reliability sampling period or interval (Quist: col 24, ln 60-64); and starting background tasks (Quist: col 4, ln 56-67). Quist does not explicitly teach checking the integrity of a non volatile memory. Chess teaches verifying the integrity of the contents of ROMs (FLASH and otherwise) (Chess: col 1, ln 37-39). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Garrow to include checking the integrity of the non volatile memory as done by Chess and Quist because the verification will ensure that no accidental changes have been made to the contents of the ROM (Chess: col 1, ln 39-41).

With respect to **claim 24**, Quist further teaches said background module includes instructions for implementing reliability associated firmware activities (e.g., col 12, ln 46-60). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Garrow to include checking the integrity of the non volatile memory as done by Chess and Quist because the verification will ensure that no accidental changes have been made to the contents of the ROM (Chess: col 1, ln 39-41).

With respect to **claim 25**, Quist further teaches said background module divides background tasks into multiple background threads that operate separately (e.g., col 6, ln 7-20). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Garrow to include checking the integrity of the non volatile memory as done by Chess and Quist because the verification will ensure that no accidental changes have been made to the contents of the ROM (Chess: col 1, ln 39-41).

19. **Claims 29, 34 and 35** are rejected under 35 U.S.C. 103(a) as being unpatentable over Gullo in view of Schwaller.

With respect to **claim 29**, Gullo teaches parent claim 27, but does not teach that the device is a communication component located in a router. Schwaller teaches that the device is a communication component located in a router (Schwaller: col 25, ln 8-9).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Gullo to include testing a router as done by Schwaller because this will provide greater testing flexibility (Schwaller: col 3, ln 17-20).

With respect to **claims 34 and 35** is rejected under 35 U.S.C. 103(a) as being unpatentable over Gullo in view of Schwaller. Gullo teaches parent claim 27, but does not teach that measuring actual operating parameters includes monitoring a communication capacity utilization. Schwaller teaches testing traffic based communications network performance using both expected and actual traffic (Schwaller: col 4, ln 30-33). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Quist and Gullo to include the communication capacity utilization of Schwaller because this will provide greater testing flexibility (Schwaller: col 3, ln 17-20).

Response to Arguments

20. Applicant's arguments with respect to claims 1-25, 27-31 and 34-36 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janet Suglo whose telephone number is 571-272-8584. The examiner can normally be reached on Monday - Thursday from 6:30am - 5:00pm.

Application/Control Number:
10/603,382
Art Unit: 2857

Page 17

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eliseo Ramos-Feliciano can be reached on 571-272-7925. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Janet L Suglo
November 13, 2007


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